

FIG. 1

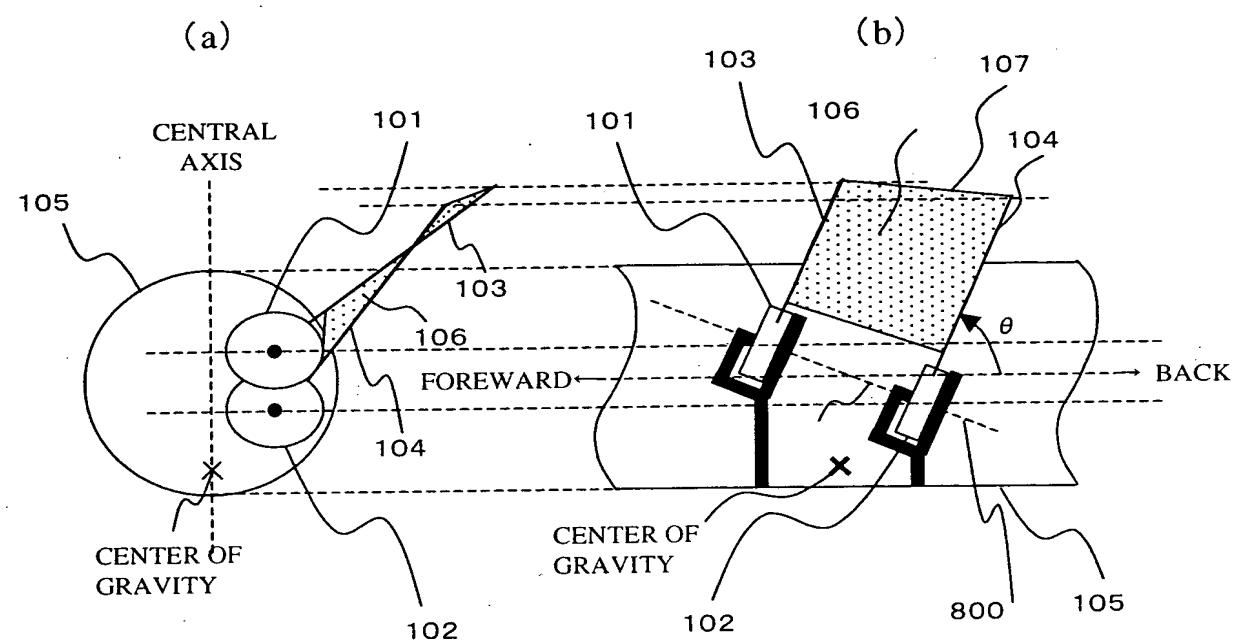
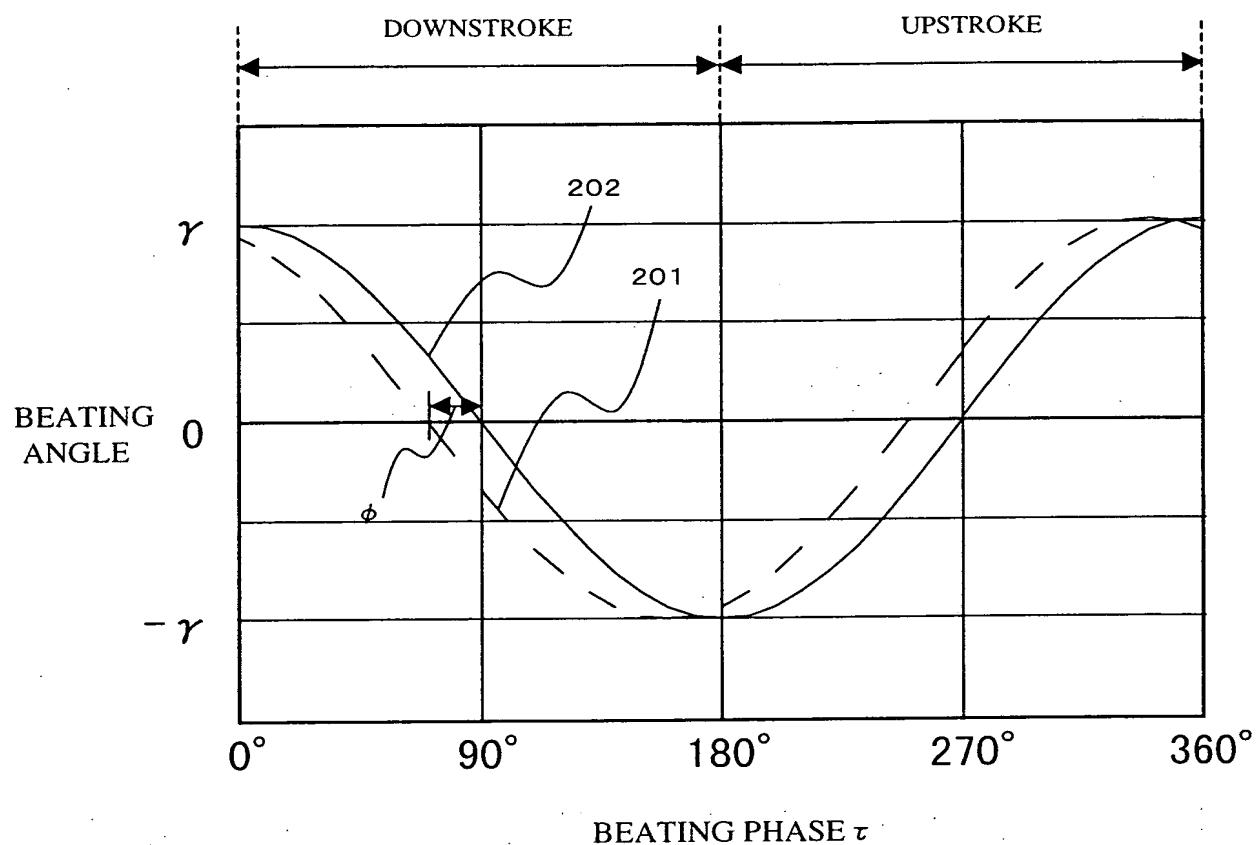


FIG.2



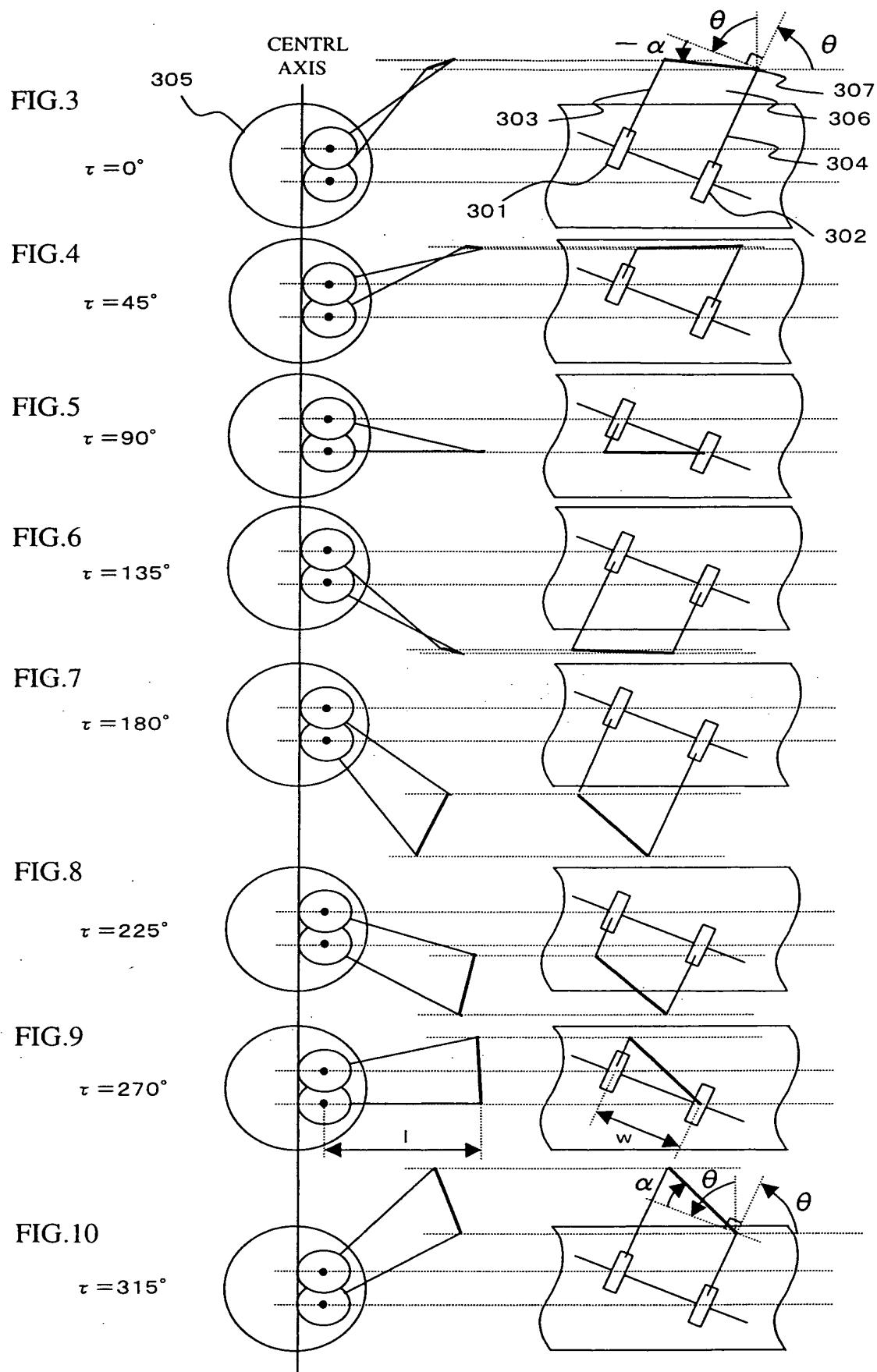


FIG.11

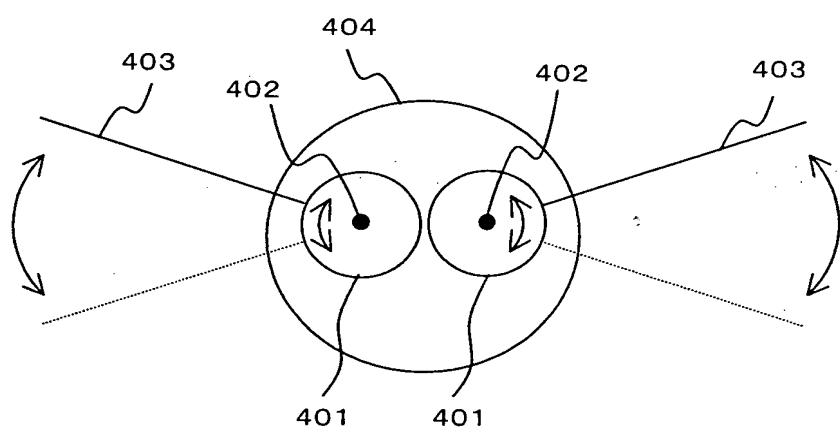


FIG.12

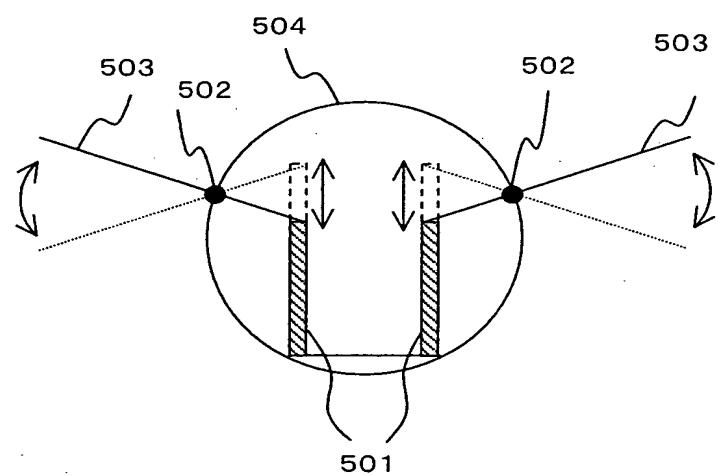


FIG.13

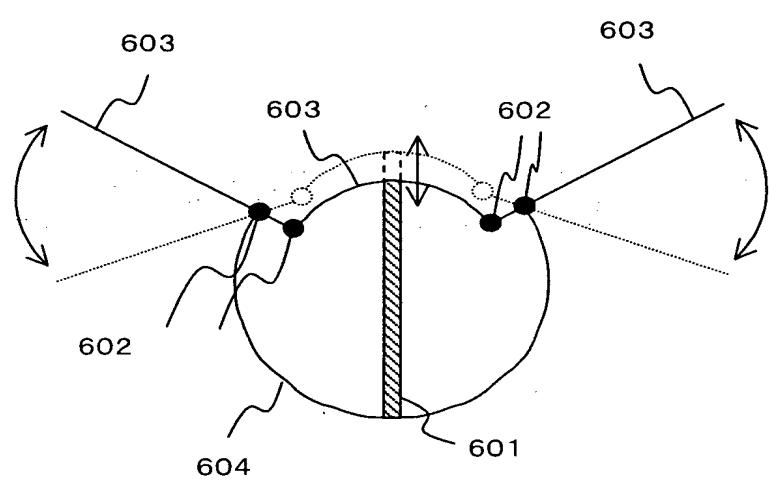


FIG.14

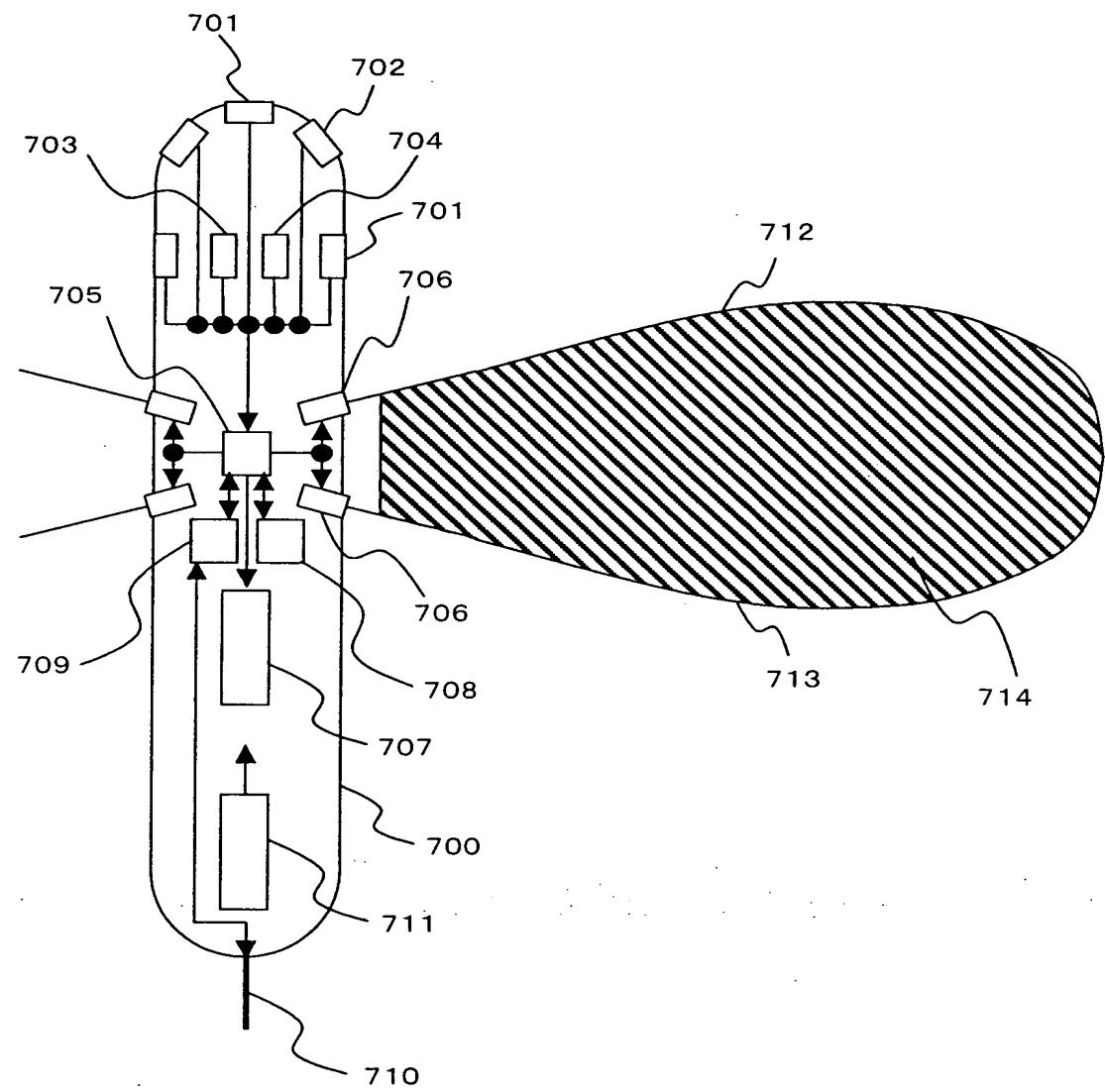


FIG.15

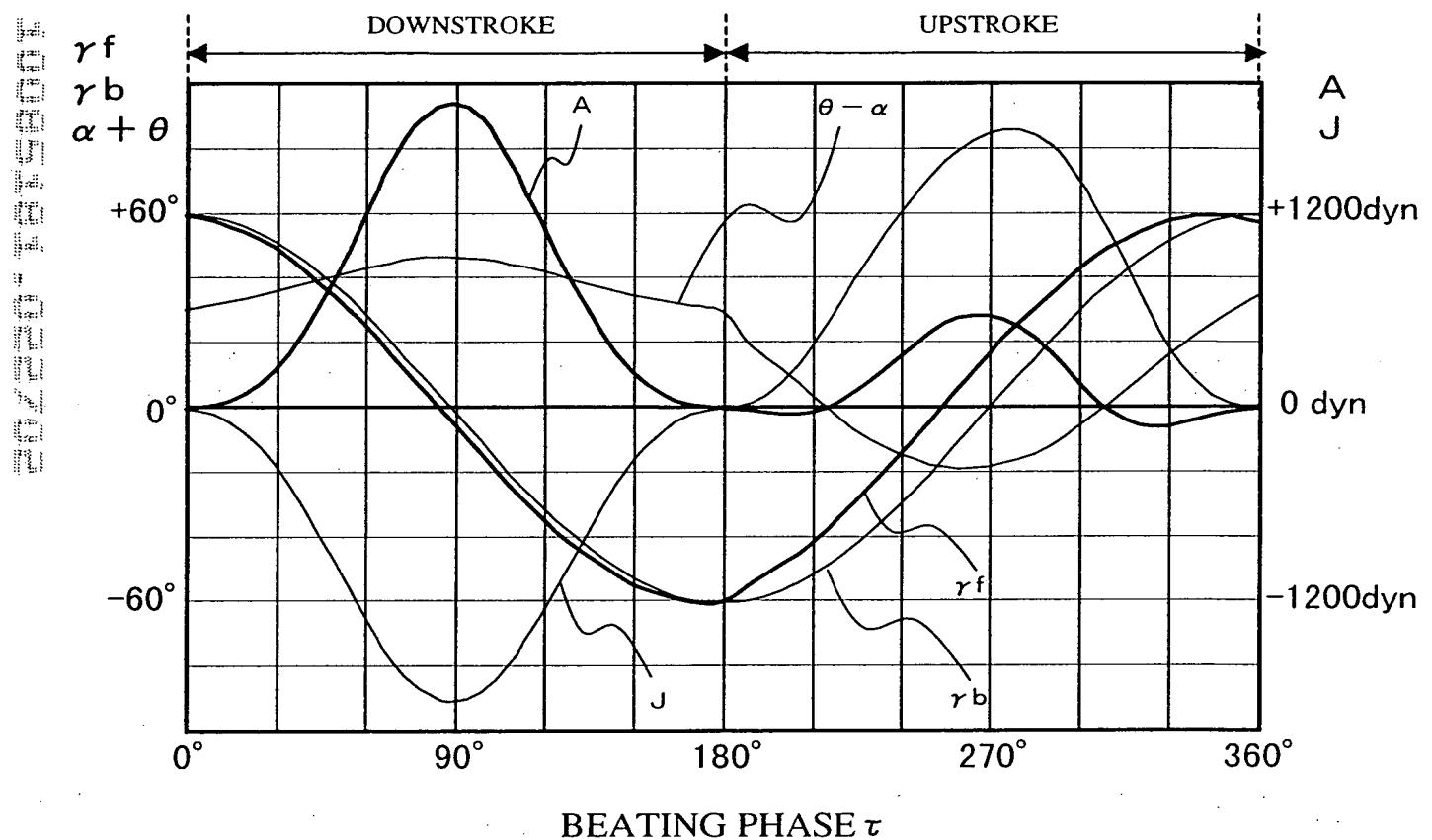
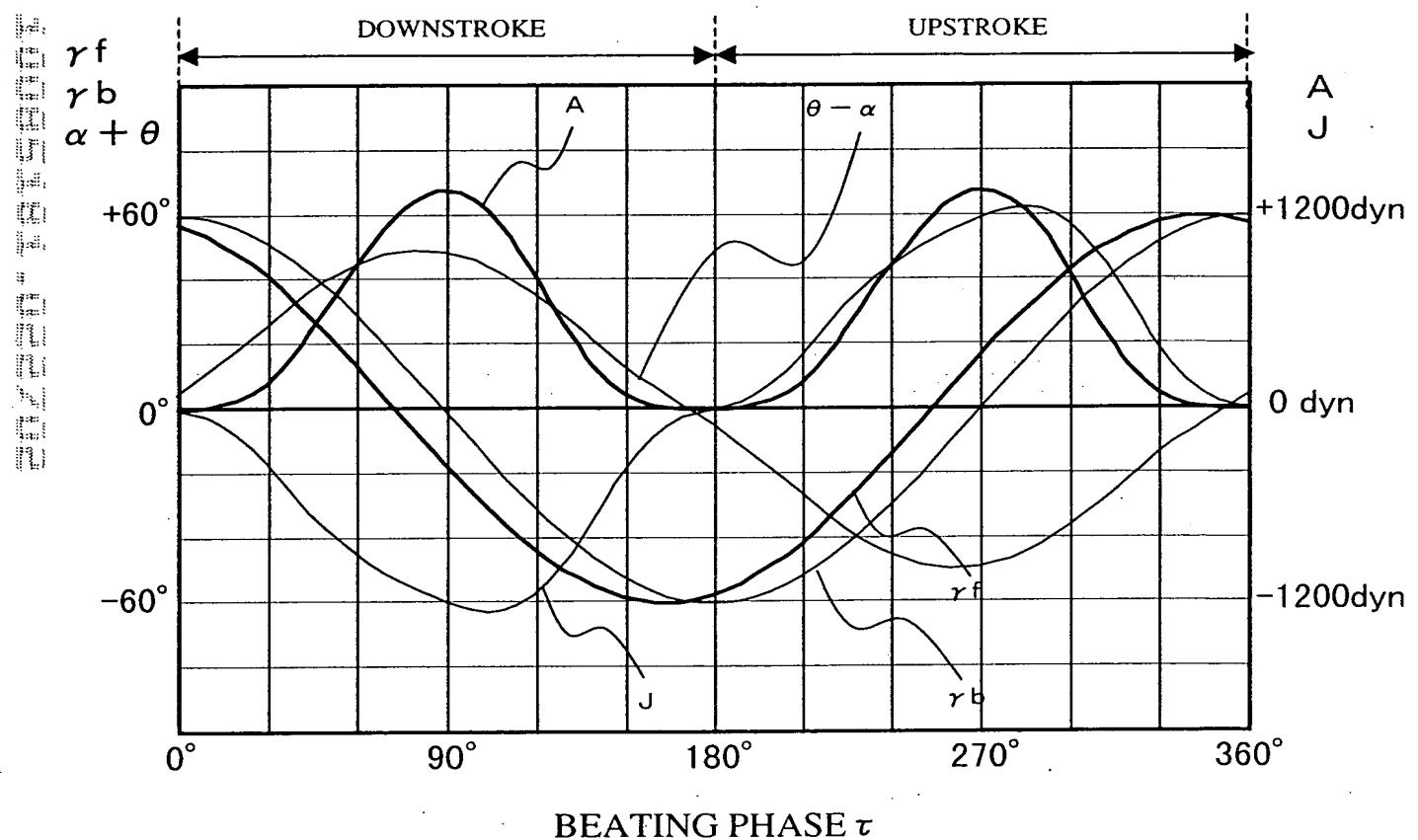


FIG.16



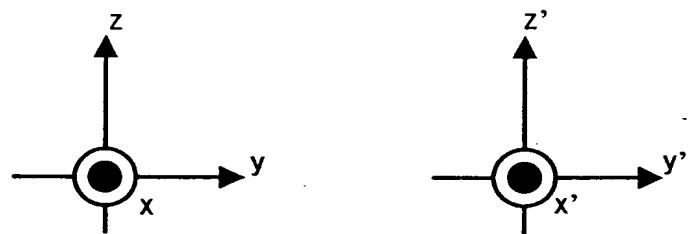
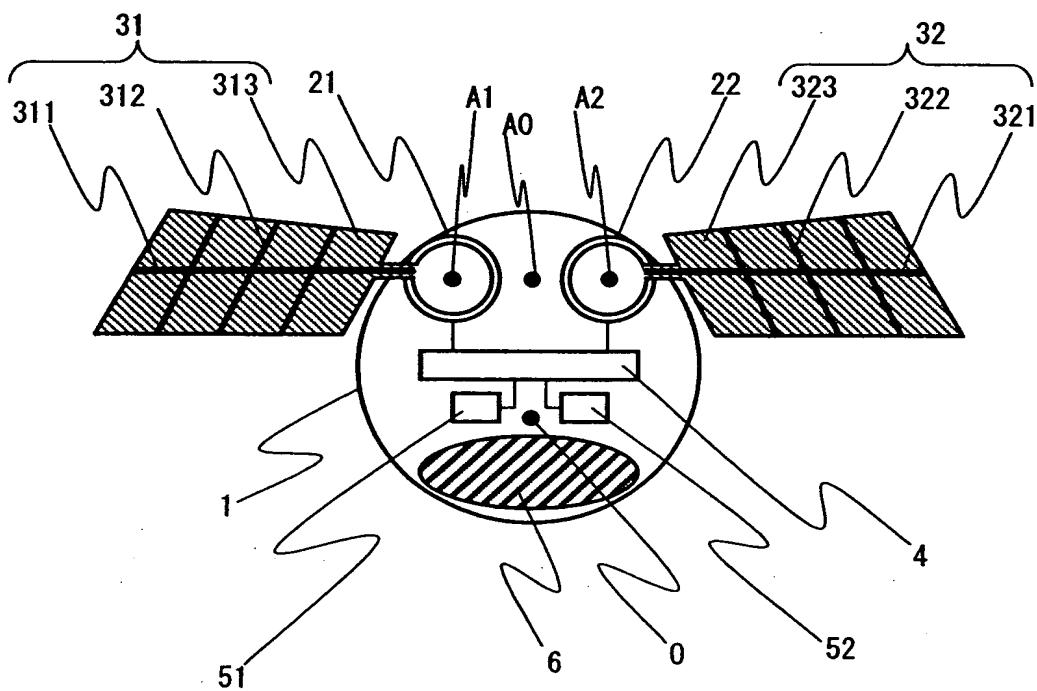


FIG. 17

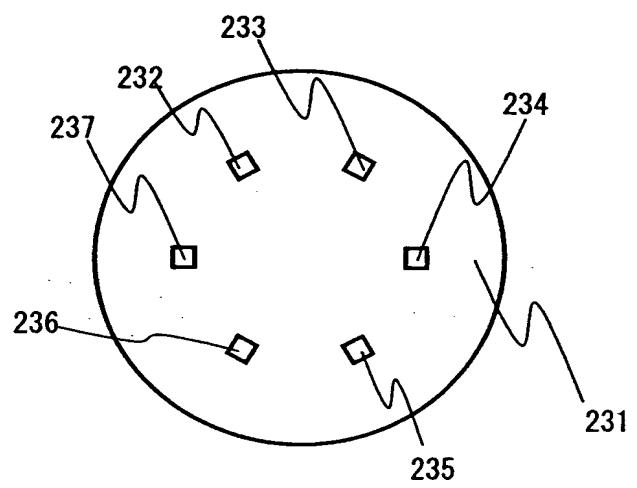


FIG. 18

100 90 80 70 60 50 40 30 20 10

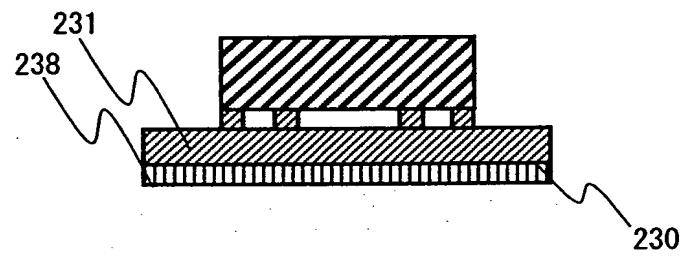


FIG. 19

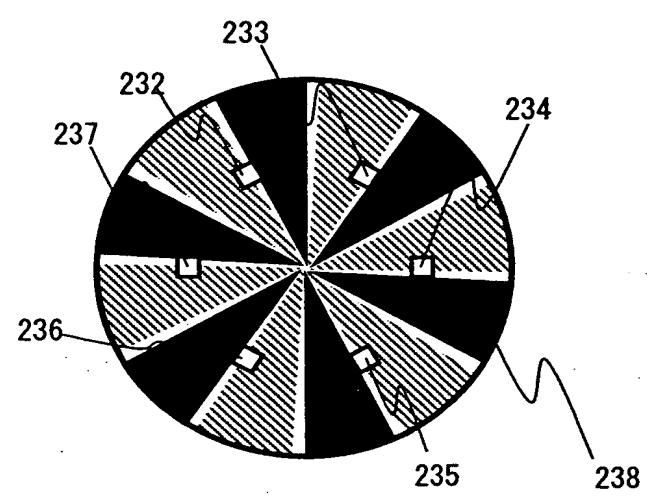


FIG. 20

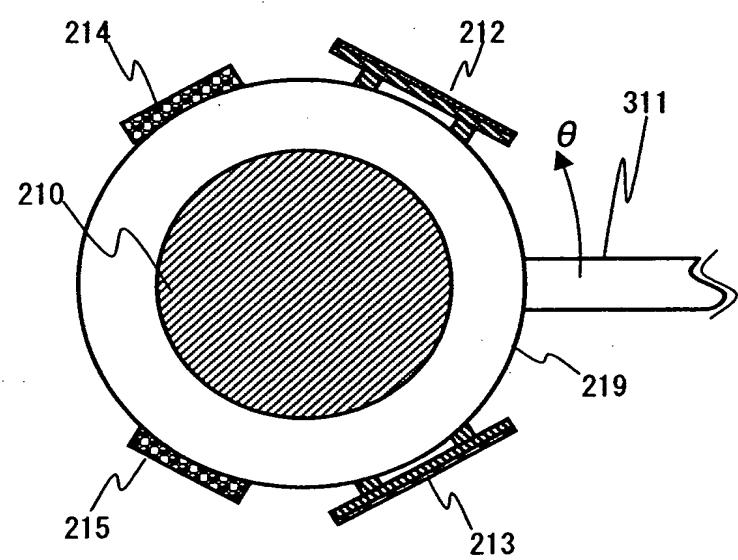


FIG. 21

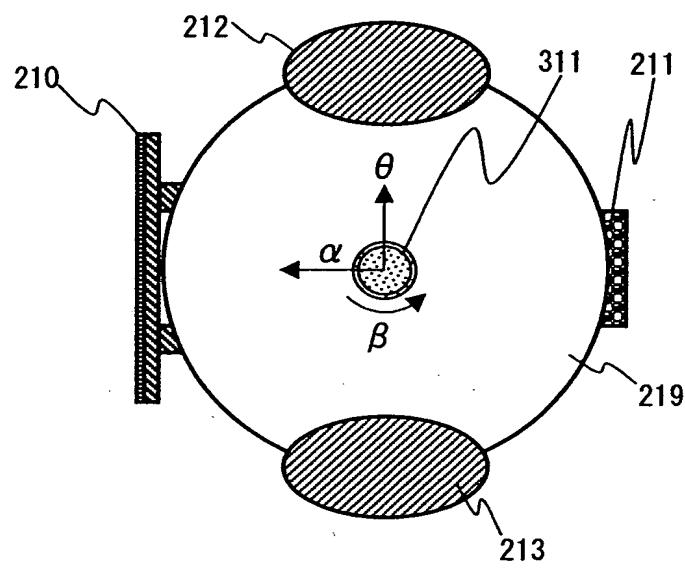


FIG. 22

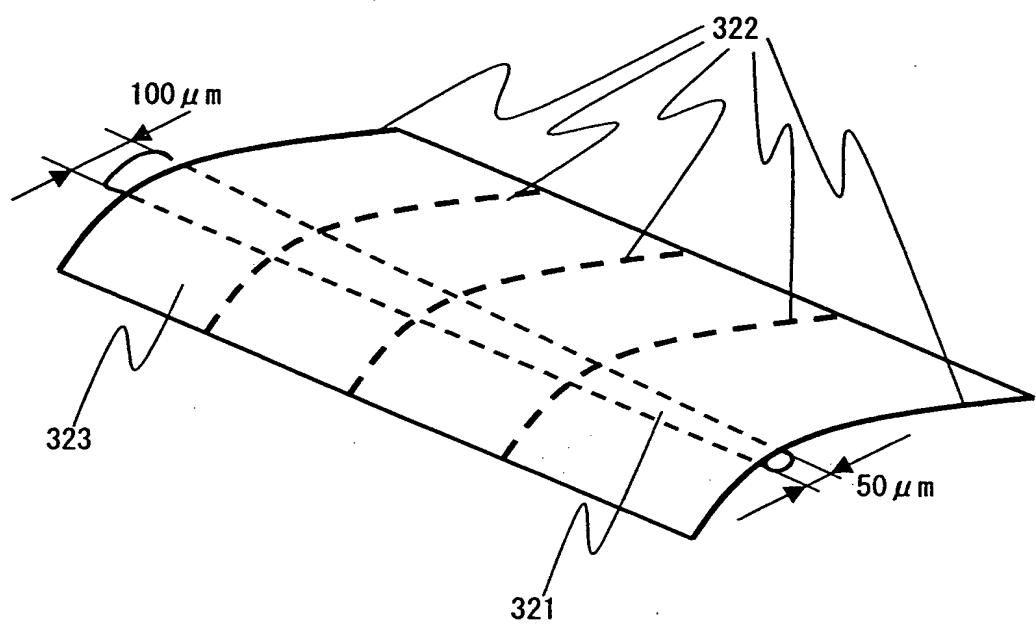


FIG. 23

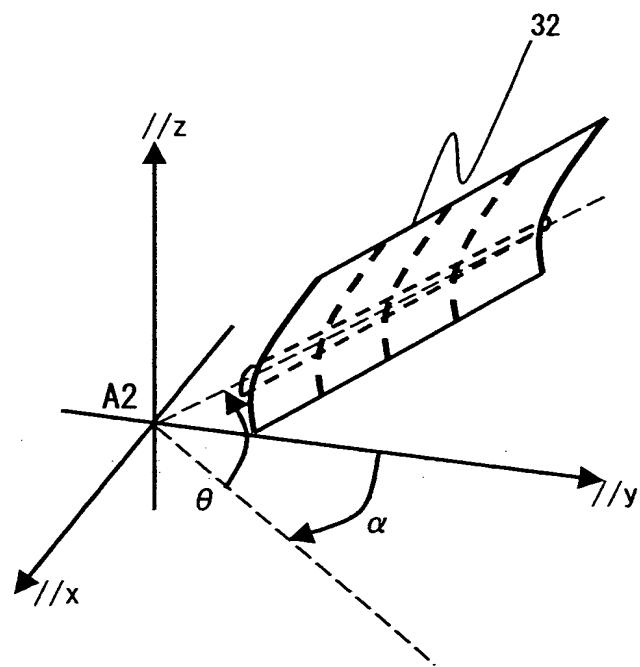


FIG. 24

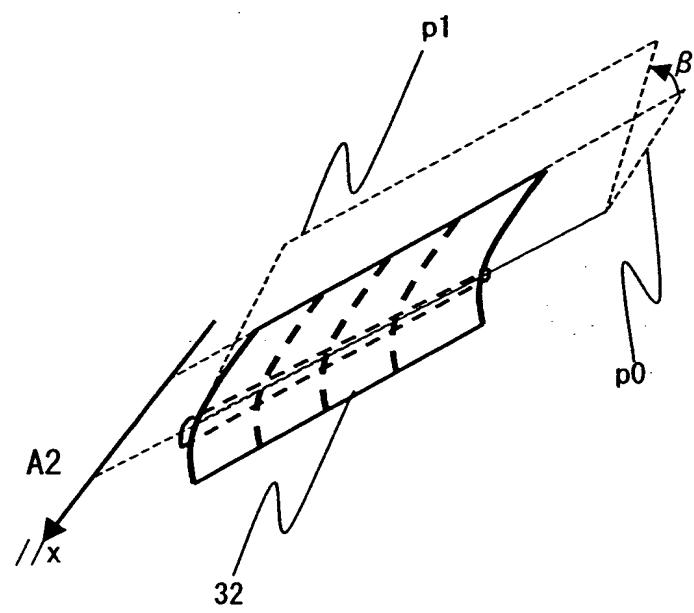


FIG. 25

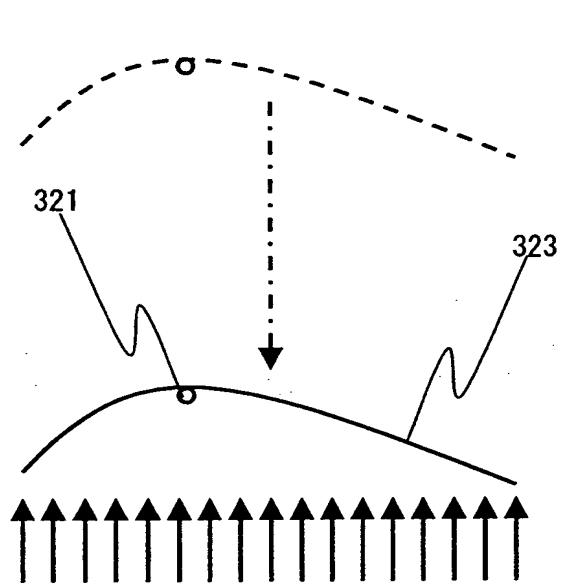


FIG. 26

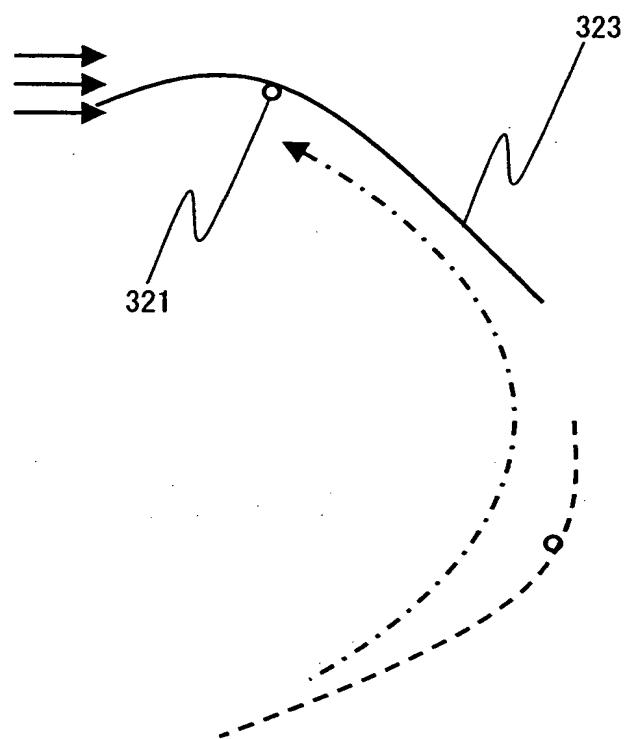


FIG. 27

4567891011121314151617181910

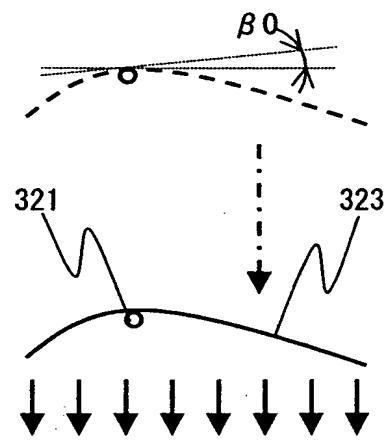


FIG. 28

1000  
900  
800  
700  
600  
500  
400  
300  
200  
100

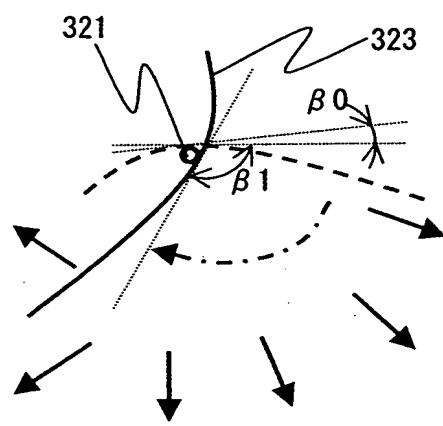


FIG. 29

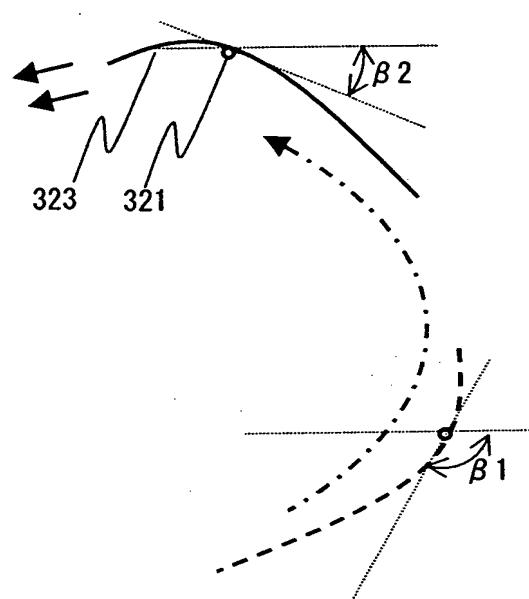


FIG. 30

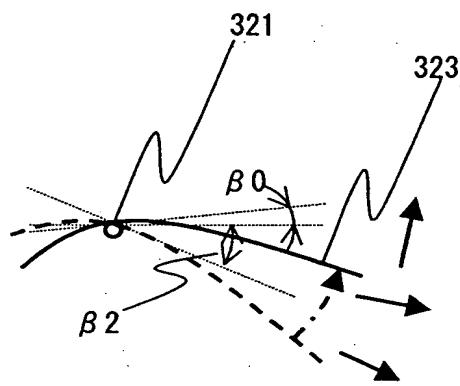


FIG. 31

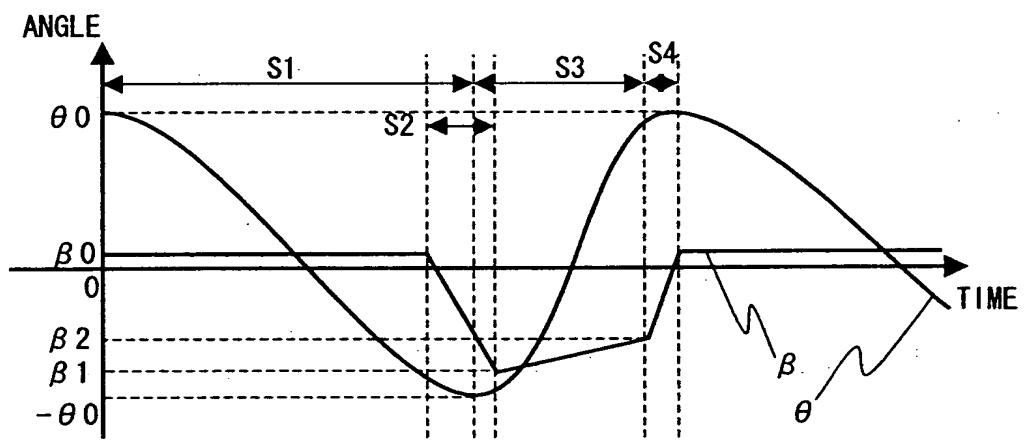


FIG. 32

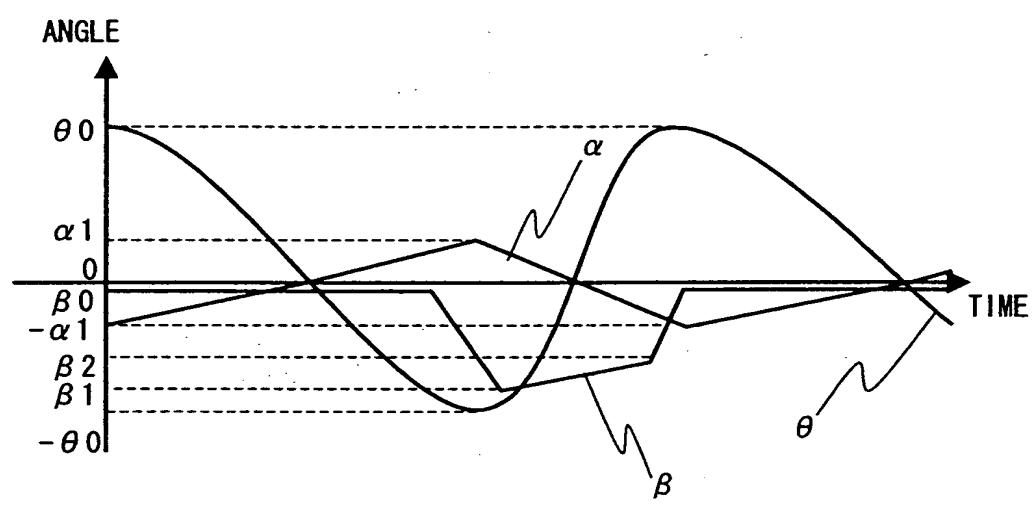


FIG. 33

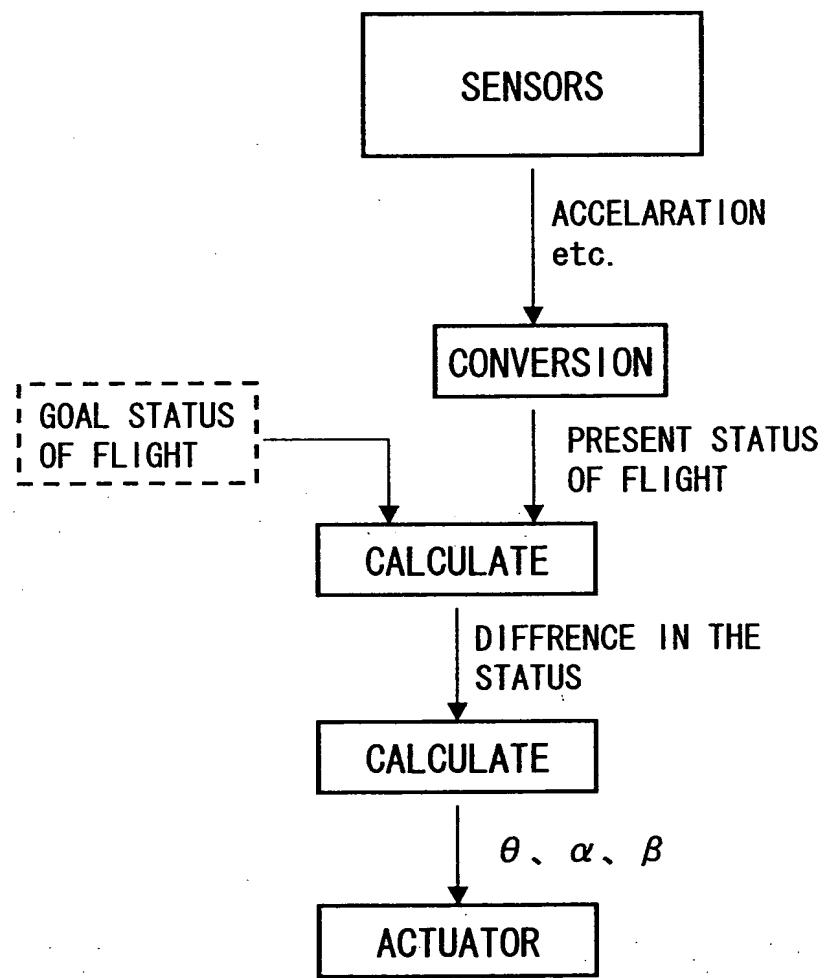


FIG. 34

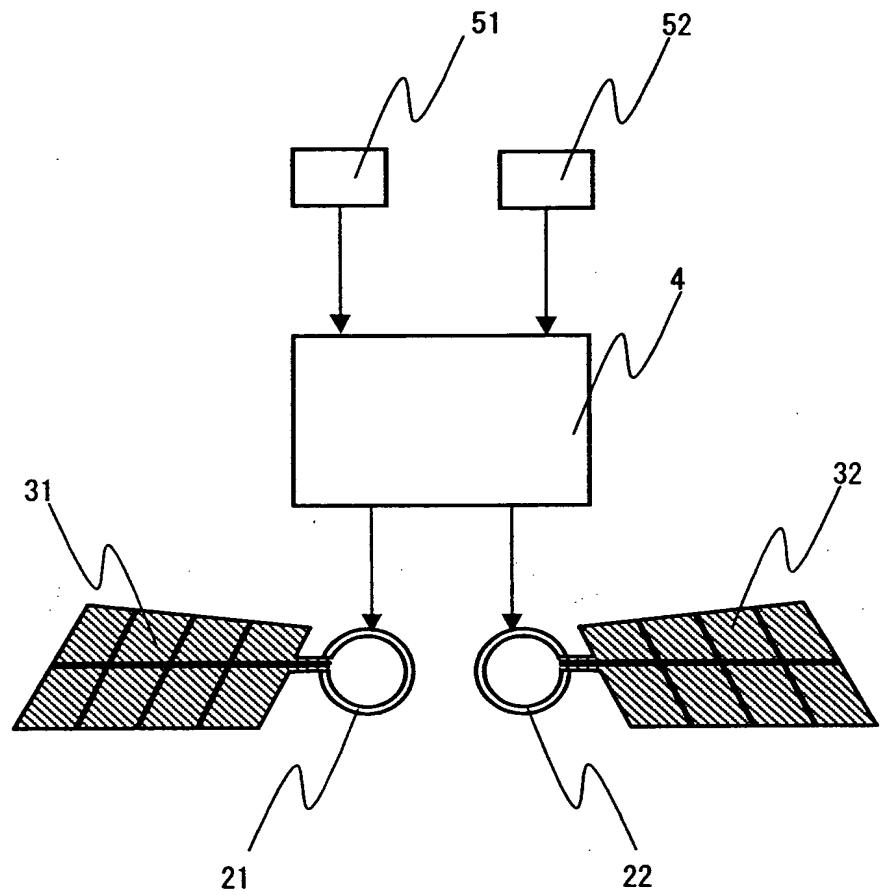


FIG. 35

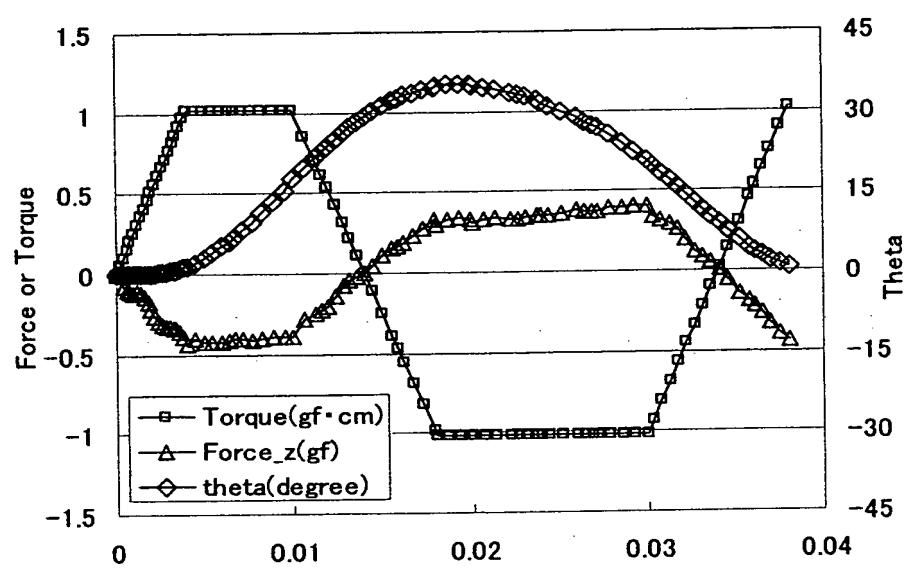


FIG. 36

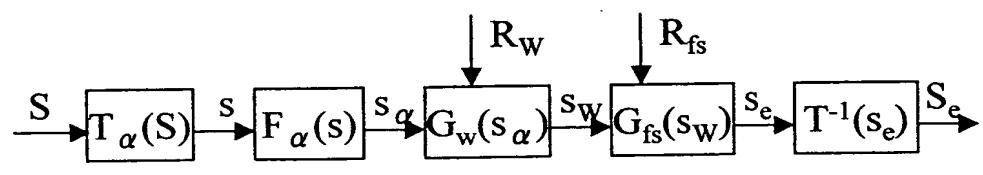


FIG. 37

		$x''$	$+x''$	$-z''$	$+z''$	$-\theta_y''$	$+\theta_y''$
S1	stroke $\theta \uparrow$			●			
	stroke $\theta \downarrow$				●		
	$-d\theta/dt \uparrow$			●			
	$-d\theta/dt \downarrow$				●		
	$-d\alpha/d\theta > d\alpha_{th}$	●					
	$-d\alpha/d\theta < d\alpha_{th}$		●				
	$\beta$ is about vertical to stroke direction.			●			
	$\beta$ is not vertical to stroke direction.				●		
	$\beta > 0$	●					
S2	$\beta < 0$		●				
	$-d\beta/dt \uparrow$	●		●		●	
S3	$-d\beta/dt \downarrow$		●		●		●
	stroke $\theta \uparrow$				●		
	stroke $\theta \downarrow$			●			
	$d\theta/dt \uparrow$				●		
	$d\theta/dt \downarrow$			●			
	$d\alpha/d\theta > d\alpha_{th}$		●				
	$d\alpha/d\theta < d\alpha_{th}$	●					
	$\beta$ is about vertical to stroke direction.				●		
	$\beta$ is not vertical to stroke direction.			●			
S4	$d\beta/dt \uparrow$	●			●		●
	$d\beta/dt \downarrow$		●	●		●	

FIG. 38

	RIGHT ACTUATOR		LEFT ACTUATOR	
	DRIVING FREQ.	MOTION PATTERN	DRIVING FREQ.	MOTION PATTERN
UP	35Hz	B	35Hz	B
DOWN	25Hz	B	25Hz	B
GO FORWARD	30Hz	A	30Hz	A
HOVER	30Hz	B	30Hz	B
TURN RIGHT	30Hz	B	30Hz	A
TURN LEFT	30Hz	A	30Hz	B

FIG. 39

FIG.40

